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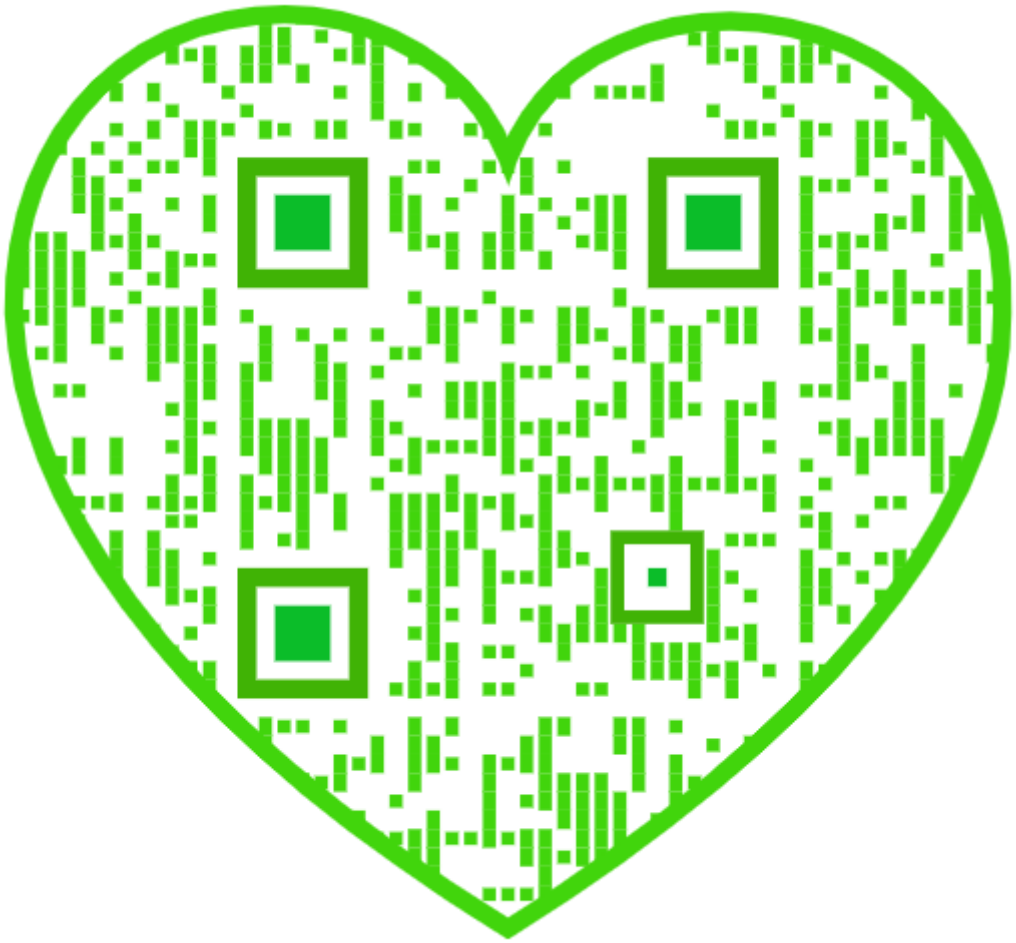

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FOOD VALUES

PRACTICAL METHODS IN DIET CALCULATIONS

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FOOD VALUES

PRACTICAL METHODS IN DIET CALCULATIONS

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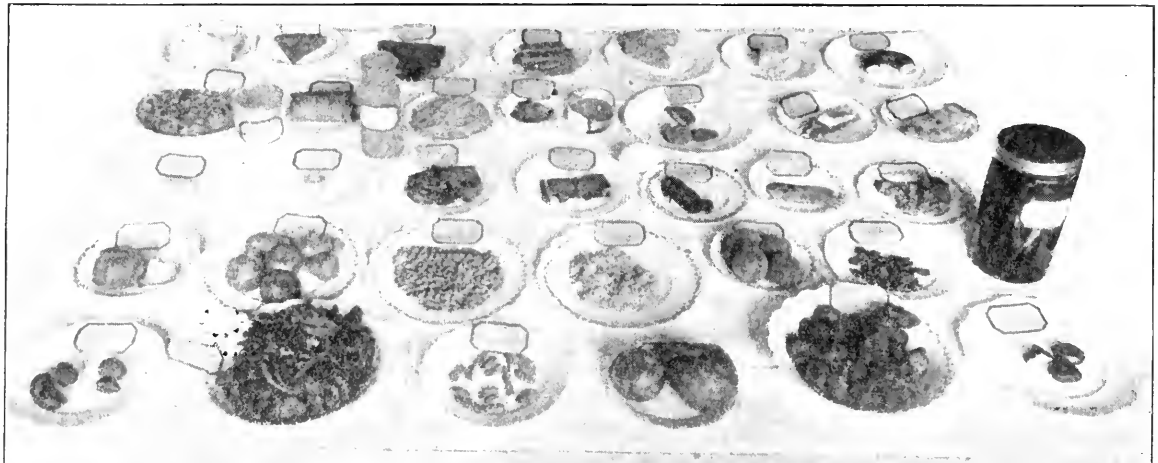

DR. FISHER'S "STANDARD PORTIONS" OF COOKED FOODS

100 Food Units (Calories) Each *

Prepared at
Lewis Institute, June '08

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Chicago

KEY

White Bread 1.3 oz. Corn Bread 1.3 oz. Brown Bread 1.5 oz. Graham Crackers 0.82 oz. Sponge Cake 0.80 oz. Frosted Cake 0.98 oz. Doughnuts 0.8 oz.
Corn Flakes 0.97 oz. Shredded Wheat 0.91 oz. Macaroni 3.8 oz. Baked Beans 2.6 oz. Caramel Custard 2.5 oz. Macaroons 0.82 oz. Lemon Pie 1.3 oz. Apple Pie 1.3 oz.
Milk 4.2 oz. Oat Meal Mush 5.6 oz. Egg 2.1 oz.
Butter 0.41 oz. Cheese 0.77 oz. Veal Leg 2.4 oz. Fat Roast Beef 0.56 oz. Lamb Chop 0.96 oz. Bacon 0.53 oz. Canned Salmon 1.5 oz.
Baked Potato 3 oz. Beets 8.7 oz. Canned Green Peas 6.3 oz. Succotash 3.5 oz. Peaches 1.0 oz. Raisins (seeded) 1.0 oz. Consomme 2.9 oz.
Olives 1.1 oz. Pickles 14.6 oz. Almonds 0.53 oz. Apples 7.3 oz. Strawberries 0.1 oz. Chocolate Creams 0.9 oz.

* Data from "A Graphic Method in Pratical Dietetics" by Irving Fisher, Ph. D.

FOOD VALUES

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"It takes as its starting point not a unit of weight, but a

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unit of *food value*, called a 'standard portion' of each kind of food. A 'standard portion' is defined as that amount of food which contains 100 calories, or food units. A table is constructed which gives the weight in a 'standard portion' of each particular kind of food, and out of the 100 calories contained therein the number of calories in the form of proteids, fats and carbohydrates.

"In order to carry out this method food should be served at the table in 'standard portions,' or simply multiples thereof. The amount of milk served, instead of being a whole number of ounces should be (for average milk) 4.9 ounces — the amount that contains 100 calories. This 'standard portion' constitutes about two-thirds of an ordinary glass of milk. Of the 100 calories which it contains 19 will be in the form of proteid, 52 in fat, and 29 in carbohydrates. In other words, of the food value of milk, 19 per cent is proteid, 52 per cent fat, and 29 per cent carbohydrates.

"One advantage of this method is apparent at once. It enables us to make a true comparison between different foods as to the relative amounts of proteids, fat and carbohydrate. The other methods are misleading in this regard. For instance, though it is well recognized that milk is a higher proteid food than pecan nuts, yet, if we compare milk and the pecans on the basis of the method of weight per cent, we shall find that the pecans appear three times as rich in proteid, milk containing 3.3 per cent and pecans 11 per cent. But if we compare them on the basis of calories per cent we find that, while milk contains 19 calories of proteid out of each 100 of total calories, pecans contain only 6, milk showing three times as much proteid as pecans. * * *

Moreover by having the composition of foods in food

units (calories) the fats are on the same basis as the proteids and carbohydrates. This is not the case in composition by weight, for one ounce of fat in the body produces 264 calories of heat and energy, while one ounce of carbohydrate or proteid produces only 116 calories. Or in grams, one gram fat gives 9.3 calories, one gram carbohydrate or proteid 4.1 calories. (A calory is approximately the amount of heat required to raise the temperature of 1 pound of water, 4° F.)

THE GRAPHIC METHOD

"Different foods contain the three food elements, proteids, fats and carbohydrates, in different proportions. The tripartite constitution of any particular food is represented in the present method by the position of a point in the triangle CPF (Fig. 1). The method of locating the point on the triangle is analogous to that of locating a city on a map by latitude and longitude; the per cent of proteid in the food is represented, like latitude, by the height of the point above the base line CF (the total height, CP, being taken as 100 per cent). The percentage of fat is represented like longitude, by the distance of the point horizontally from the vertical line CP (the total horizontal breadth, CF, being taken as 100 per cent). Thus, the point O, representing milk, is located at a height above CF ('latitude') 19 per cent of the total height of the triangle, which signifies that 19 per cent of the food value of milk is proteid; and at a distance to the right of CP ('longitude') 52 per cent of the total breadth of the triangle, which signifies that 52 per cent of the food value of milk is fat. Foods high in proteid will be represented by points high up in the triangle. White of egg, of which the food value is all proteid, will be represented at the point P, representing 100 per cent. P is, therefore, called the 'pro-

teid corner' of the triangle. Foods rich in fats, as nuts, cream, and butter, are represented by points far to the right. Pure fats, like olive oil, are located at F at the extreme right, representing 100 per cent of fat. F is therefore called the 'fat corner.'

"The point representing a food is completely located by means of the percentage of proteid and fat; no attention

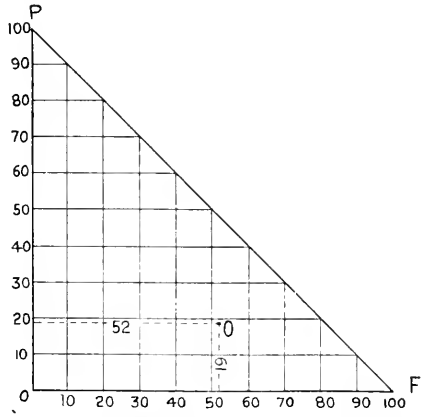


Fig. 1 "Food Map." Composition of Milk Represented by Position of Point O.

need be paid to the carbohydrate. If one desires a graphic representation of carbohydrates it is found in the distance of the point O from the third side of the triangle, FP (the total distance of this side from the opposite corner being taken as 100 per cent). Foods like bread, cereals and fruits, which are mostly carbohydrate, will thus be represented by points far away from the side FP. Foods such as sugar, of which the food value is wholly carbohydrate, will be repre-

sented at the remotest point C, representing 100 per cent carbohydrate, which is, therefore, called the 'carbohydrate corner.'

"Any food is thus represented on the 'food map' by a point, the relative distances of which from the three sides of the triangle represent the proteid, fat and carbohydrate. On this food map, fatty foods are represented by points near the fat corner, F; starchy and saccharine foods by points near the carbohydrate corner, C, and proteid foods by points near the proteid corner, P. A food devoid of proteid is evidently located on the base line C; a food devoid of fat, on the side CP, and a food devoid of carbohydrate on FP. The chief classes are represented in the accompanying diagrams, flesh foods and cereals being shown in Figure 2; dairy products, eggs and meat substitutes in Figure 3; vegetables in Figure 4; nuts and fruits in Figure 5; soups, salads and relishes in Figure 6, and puddings, pies, pastries and sweets in Figure 7. In each case the position of the point relatively to the sides of the triangle represents the proportions of the proteids, fats, and carbohydrates, and the number opposite each name represents the weight (in ounces) of a 'standard portion.' * * *

COMBINATIONS

"The combination of two foods equal in calories is represented by a point midway between them. Thus, to combine one 'portion' of bread and one 'portion' of butter (Fig. 9) draw a straight line between their points and at the middle of it mark a cross and label it '2'; this point will represent two 'portions' of bread and butter.

"If the calories of the two foods are unequal, the point representing the combination will be proportionately nearer

the point with the larger number. Thus, if one portion of bread is combined with one-half portion of butter, the bread and butter point will be midway between the points for bread and for butter, but will lie twice as near the bread point as the butter point.

"When three foods are combined, the point representing the combination is, in like manner, the 'center of gravity' of

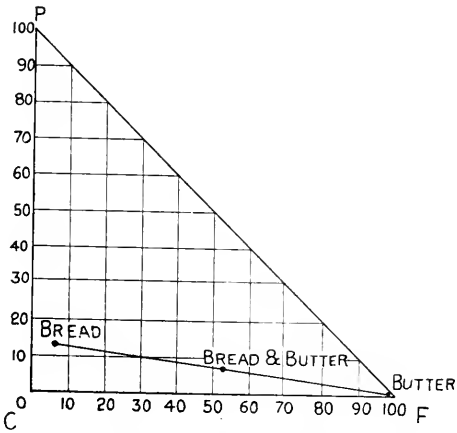


Fig. 9. Food Map Showing Combination of one "Portion" of Bread and one "Portion" of Butter.

the three, and may be found by first obtaining the center of gravity of two, and then obtaining the center of gravity of the point thus obtained, and the third. Thus if, as in Fig. 10, we have three points representing respectively, 3, 4 and 5 calories of three separate foods, shown by the attached numbers 3, 4 and 5, the point representing the combination may be found by joining the points labeled 3 and 4, and finding their center of gravity 7, situated nearer the point 4 than point

3, and dividing the line between them in the ratio of 3 to 4. The first two points, 3 and 4, may be considered as concentrated at 7 with their combined weight, 7. We then find the center of gravity of this new point 7 and the remaining point, 5. The center of gravity at this point 7 and point 5 will be a point 12, on the straight line between them, situated nearer the 7 than the 5, and dividing the distance between in the

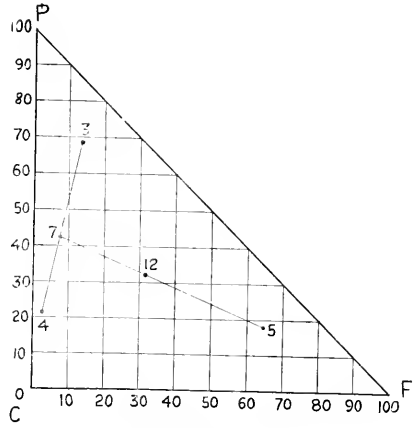


Fig. 10. Showing Method of Combining Three or More Foods.

ratio of 5 to 7. At point 12 the whole combination of 12 portions may be considered to be concentrated. It is evident that we could find the center of gravity of the same three points by combining them in a different order, but the result would be the same.

"It is evident that more than three points may be combined on the same principles by combining them by twos and threes and then combining the combinations. * * * *

"If we accept Professor Chittenden's results as to proteid requirements, a well balanced daily ration for the average person will be represented by a point lying within the 'normal rectangle,' as shown in Fig. 11. This shows that proteid should be near 10 per cent. * * * *

"Since the resultant point, representing the ration, is the center of gravity of the points representing its constituents,

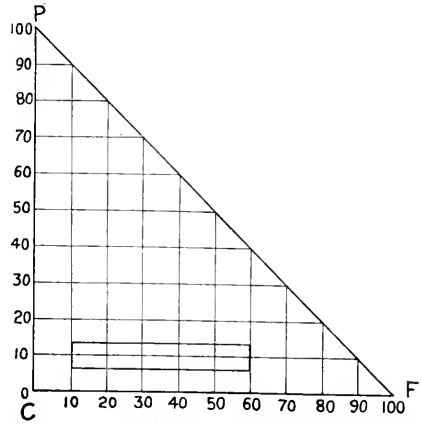


Fig. 11. Food Map with "Normal Rectangle," Chittenden's Standard, of Well Balanced Ration.

it is evident it can be obtained by mechanical as well as by geometrical methods. For this purpose a mechanical diet indicator has been devised, as shown in Fig. 12.

"The essential feature of this apparatus is a card on which is drawn the right-angled triangle with which we have already become familiar. Points on this card may be located to represent the various foods employed. These points may be easily found from table given at the end of this article. . . .

At points representing foods eaten, pins with heavy heads are thrust through the cardboard, the weight of each representing one 'standard portion.' Similar pins but one-half and one-quarter as heavy are also provided to represent half

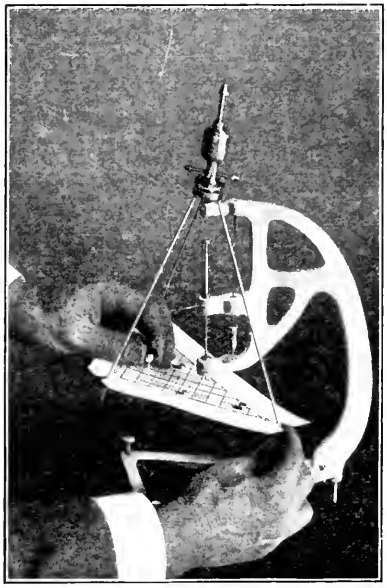


Fig. 12. Mechanical Diet Indicator.

and quarter 'portions.' When these pins are placed the total ration which has been consumed is easily found, simply by counting the 'portions' thus represented. In order to find the precentages of proteid, fat and carbohydrate in this rations it is only necessary to obtain the center of gravity of all the pins. For this purpose the card is placed in a basket

and suspended on a standard so that the center of gravity is easily indicated on the card by means of a vertical pricker, which may be pressed on the card. Thus, almost instantaneously, the center of gravity is found. The total time consumed in placing the pins, adjusting the card and basket, and finding the center of gravity, is found to be, for accurate work, about five minutes."

Professor Fisher's mechanical diet indicator is now manufactured and may be obtained through the Purchasing Department of this School for $25.00, express collect.

Further details are given in the original article, reprint of which will be *loaned* to *Members of the School* for 1c. postage.

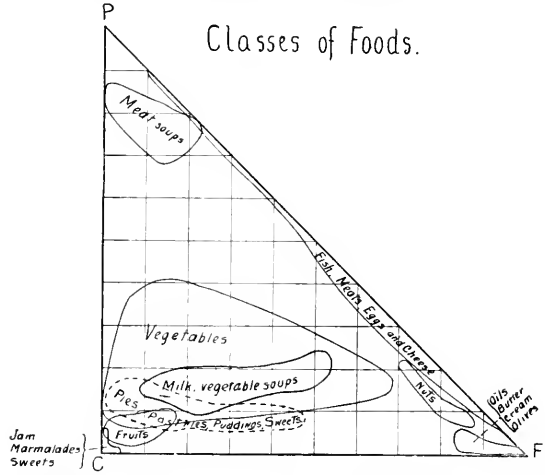
Aside from the "food map" and the diet indicator, the table will repay careful study in making clear the real composition of foods as eaten.

The proportion of proteids given in the table for some of the foods is not absolutely correct, as proteid-like substances like gelatin and also the so-called "extractives," the latter having no food value, are calculated as proteids. The error is not serious, for the proportion of such substances is usually very small.

The table is particularly valuable in showing equivalent total food values. After weighing out a few "portions" of various foods it is very easy to tell by the eye the amount of food being served and so obtain a fairly accurate idea of the total food value of one's diet. An ordinary postal scale will serve for weighing.

An educated appetite is the best guide for diet in health. In a diet for an invalid, foods may easily be served in "standard portions" or multiplies or fractions thereof, so that a physician's prescription as to food may be followed. It would, of course, be necessary to deduct food served but not eaten.

If it is desired to add further items to the table, the weight of a "standard portion" and the calories per cent is found from the percentage composition given in the Department of Agriculture Bulletin No. 28, Chemical Composition of Ameri-



can Food Materials,* as follows: The weight in ounces of a "standard portion" is found by dividing 1,600 by the number of calories per pound given in the table.

The "calories per cent" of proteid is found by multiplying the percentage of proteid in the *Bulletin* table by 1,860 and dividing the result by the figure giving the numbers of calories per pound. The same calculation and the same factor 1,860 applies to carbohydrates. For fat the same calculation applies, but with the substitution of the factor 4,220 in place of 1,860. The three results may be verified by adding the resulting figures for proteid, fat and carbohydrate, the sum of which should be 100 per cent.

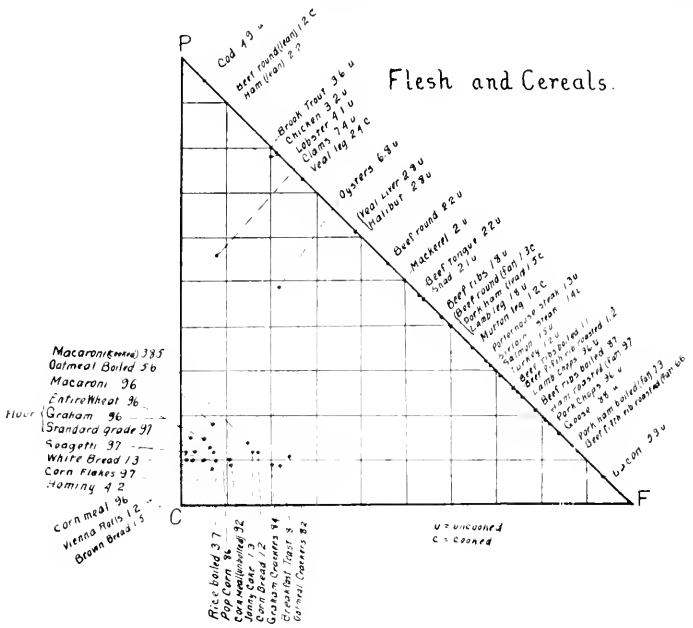
* For this Bulletin send 5 cents (*coin*) to the Supt. of Documents, Washington, D. C.

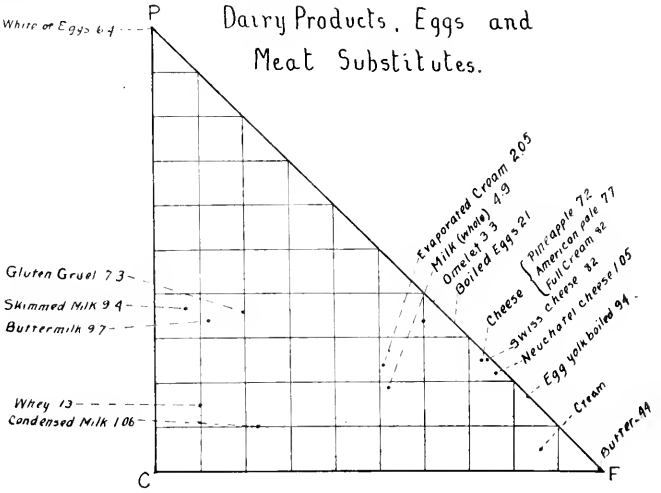
TABLE OF 100 FOOD UNITS

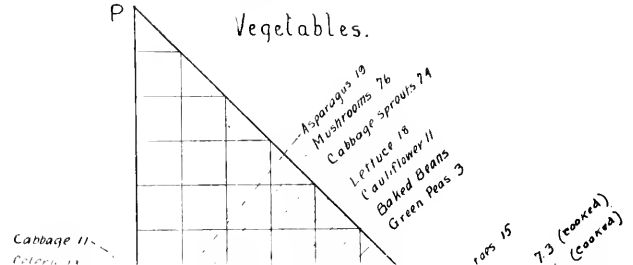
Name of Food	"Portion" Containing 100 Food Units (approx.)	Wt. of 100 Calories		Per cent of		
		Grams	Oz.	Proteid	Fat	Carbohydrate
COOKED MEATS						
†Beef, r'nd, boiled (fat) 1099‡	Small serving	36	1.3	40	60	00
†Beef, r'd, boiled (lean) 1206‡	Large serving	62	2.2	90	10	00
†Beef, r'd, boiled (med.) 1188‡	Small serving	44	1.6	60	40	00
†Beef, 5th rib, roasted, 1538‡	Half serving	18.5	.65	12	88	00
†Beef, 5th rib, roasted, 1616‡	Small serving	32	1.2	25	75	00
†Beef, 5th rib, roasted, 1615‡	Very small s'v'g	25	.88	18	82	00
‡Beef, ribs boiled, 1169‡	Small serving	30	1.1	27	73	00
†Beef, ribs boiled, 1170‡	Very small s'v'g	25	.87	21	79	00
*Calves foot jelly		112	4.	19	00	81
*Chicken, canned	One thin slice	27	.96	23	77	00
*Lamb chops, boiled, av	One small chop	27	.96	24	76	00
*Lamb, leg, roasted	Ord. serving	50	1.8	40	60	00
†Mutton, leg, boiled, 1184‡	Large serving	34	1.2	35	65	00
†Pork, ham, boiled (fat) 1174‡	Small serving	20.5	.73	14	86	00
†Pork, ham, boiled, 1192‡	Ord. serving	32.5	1.1	28	72	00
†Pork, ham, r'st'd, (fat) 1484‡	Small serving	27	.96	19	81	00
†Pork, ham, r'st'd, (lean), 1511‡	Small serving	34	1.2	33	67	00
*Turkey, as pur., canned	Small serving	28	.99	23	77	00
†Veal, leg, boiled, 1182‡	Large serving	67.5	2.4	73	27	00
UNCOOKED MEATS, EDIBLE PORTION						
*Beef, loin, av. (lean)	Ord. serving	50	1.8	40	60	00
*Beef, loin, av. (fat)	Small serving	30	1.1	22	78	00
*Beef, loin, p'house steak, av	Small steak	36	1.3	32	68	00
*Beef, loin, sirloin steak, av.	Small steak	40	1.4	31	69	00
*Beef, ribs, lean, av	Ord. serving	52	1.8	42	58	00
*Beef, round, lean, av	Ord. serving	63	2.2	54	46	00
*Beef, tongue, average	Ord. serving	62	2.2	47	53	00
*Beef, juice		395	14.	78	22	00
*Chicken (broilers), av	Large serving	90	3.2	79	21	00
*Clams, r'nd in shell, av	Twelve to 16	210	7.4	56	8	36
*Cod, whole	Two servings	138	4.9	95	5	00
*Goose (young) av	Half serving	25	.88	16	84	00
*Halibut steaks, av	Ord. serving	81	2.8	61	39	00
*Liver (veal) av	Two small s'v'g	79	2.8	61	39	00
*Lobster, whole, av	Two servings	117	4.1	78	20	2
*Mackerel (Span.), whole, av.	Ord. serving	57	2.	50	50	00
*Mutton leg, hind, lean, av	Ord. serving	50	1.8	41	59	00
*Oysters, in shell, av	One dozen	193	6.8	49	22	29
*Pork, loin chops, av	Very small s'v'g	27	.97	18	82	00
*Pork, ham, lean, av	Small serving	36	1.3	29	71	00
*Pork, bacon, med. fat, av	Small serving	15	.53	6	94	00
*Salmon (Cal.), average	Small serving	42	1.5	30	70	00
Shad, whole, average	Ord. serving	60	2.1	46	54	00
*Trout, brook, whole, av	Two small s'v'g	100	3.6	80	20	00
*Turkey, average	Two small s'v'g	33	1.2	29	71	00

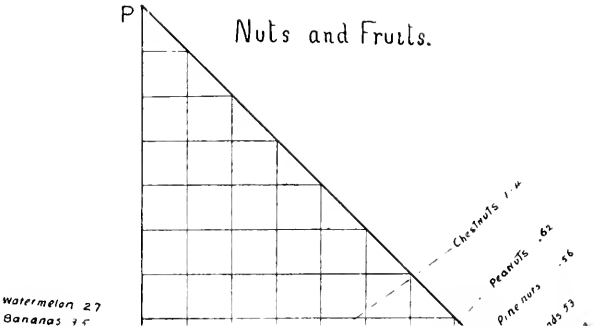
Name of Food	"Portion" Containing 100 Food Units (approx.)	Wt. of 100 Calories		Per cent of		
		Grams	Oz.	Proteid	Fat	Carbohydrate
	VEGETABLES					
*Artichokes, av. canned		430	15	14	0	86
*Asparagus, av. canned		540	19	33	5	62
*Asparagus, av. cooked		206	7.19	18	63	19
*Beans, baked, canned	Small side dish	75	2.66	21	18	61
*Beans, Lima, canned	Large side dish	126	4.44	21	4	75
*Beans, string, cooked	Five servings	480	16.66	15	48	37
*Beets edible portion, cooked	Three servings	245	8.7	2	23	75
*Cabbage, edible portion		310	11	20	8	72
*Carrots, edible pt., fresh		215	7.6	10	8	82
Carrots, cooked	Two servings	164	5.81	10	34	56
*Cauliflower, as purchased		312	11	23	15	62
*Celery, edible portion		540	19	24	5	71
Corn, sweet, cooked	One side dish	99	3.5	13	10	77
*Cucumbers, edible pt.		565	20	18	10	72
*Egg plant, edible pt.		350	12	17	10	73
Lentils, cooked		89	3.15	27	1	72
*Lettuce, edible pt		505	18	25	14	61
*Mushrooms, as purchased		215	7.6	31	8	61
*Onions, fresh, edible pt.		200	7.1	13	5	82
*Onions, cooked	Two large s'v'gs	240	8.4	12	40	48
*Parsnips, edible pt.	1½ serving	152	5.3	10	7	83
Parsnips, cooked		163	5.84	10	34	56
*Peas, green, canned	Two servings	178	6.3	25	3	72
*Peas, green, cooked	One serving	85	3	23	27	50
Potatoes, baked	One good sized	86	3.05	11	1	88
*Potatoes, boiled	One large sized	102	3.62	11	1	88
*Potatoes, mashed (creamed)	One serving	89	3.14	10	25	65
Potatoes, steamed	One serving	101	3.57	11	1	88
*Potatoes, chips	One-half s'v'g	17	.6	4	63	33
*Potatoes, sweet, cooked	Half av. potato	49	1.7	6	9	85
*Pumkpins, edible pt.		380	13	15	4	81
Radishes, as purchased		480	17	18	3	79
Rhubarb, edible, pt.		430	15	10	27	63
*Spinach, cooked	Two ord. s'v'g.	174	6.1	15	66	19
Squash, edible pt.		210	7.4	12	10	78
*Succotash, canned	Ord. serving	100	3.5	15	9	67
*Tomatoes, fresh as purchased	Four av.	430	15	15	16	69
Tomatoes, canned		431	15.2	21	7	72
*Turnips, edible pt.	Two large s'v'g	246	8.7	13	4	83
Vegetable oysters		273	9.62	10	51	39
	FRUITS (DRIED)					
*Apples, as purchased		34	1.2	3	7	90
Apricots, as purchased		35	1.24	7	3	90
*Dates, edible portion	Three large	28	.99	2	7	91
*Dates, as purchased		31	1.1	2	7	91
*Figs, edible portion	One large	31	1.1	5	0	95
*Prunes, edible portion	Three large	32	1.14	3	0	97
*Prunes, as purchased		38	1.35	3	0	97
*Raisins, edible portion		28	1.	3	9	88
*Raisins, as purchased		31	1.1	3	9	88

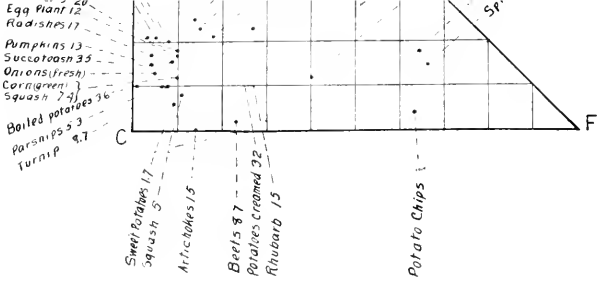
Figs. 2 to 7. FOOD MAPS— Weights of 100 Food Units in Ounces.

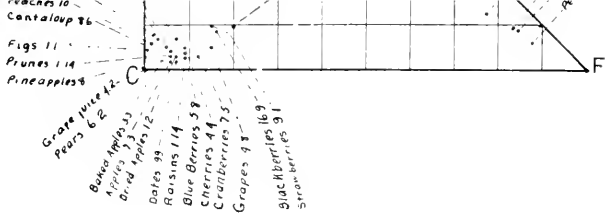


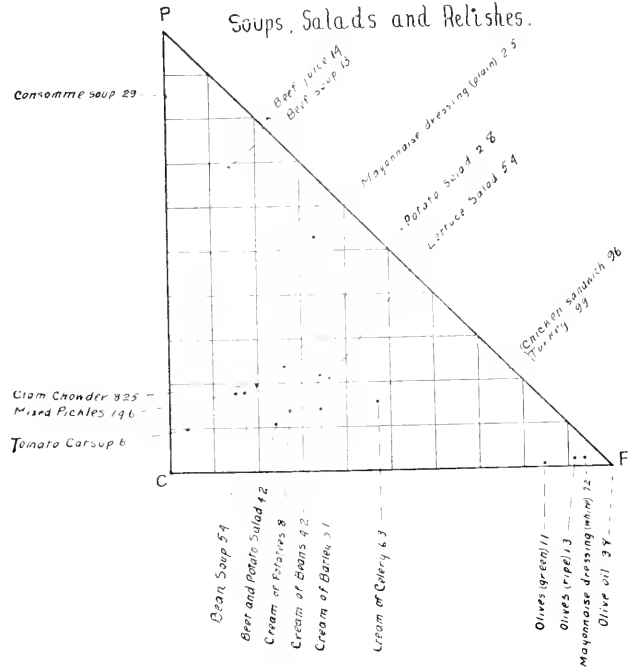


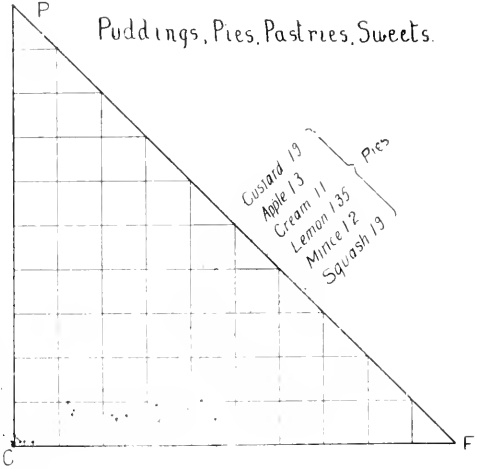












Orange Peel Marmalade 1
Chocolate Santas 11
Lady Fingers 97
Brown Betty Desert 2
Rice Pudding 26
Chocolate Layer Cake 27
Gingerbread 36
Sponge Cake 89

Doughnuts 8

Name of Food	"Portion" Containing 100 Food Units (approx.)	Wt. of 100 Calories		Per cent of		
		Grams	Oz.	Proteid	Fat	Carbohydrate
FRUITS (FRESH OR COOKED)						
*Apples, as purchased	Two apples	206	7.3	3	7	90
Apples, baked		94	3.3	2	5	93
Apples, sauce	Ord. serving	111	3.9	2	5	93
*Apricots, edible pt		168	5.92	8	0	92
Apricots, cooked	Large serving	131	4.61	6	0	94
*Bananas, edible pt	One large	100	3.5	5	5	90
*Blackberries		170	5.9	9	16	75
Blueberries		128	4.6	3	8	89
*Blueberries, canned		165	5.8	4	9	87
Cantaloupe	Half or. serv'g	243	8.6	6	0	94
*Cherries, edible portion		124	4.4	5	10	85
*Cranberries, as purchased		210	7.5	3	12	85
*Grapes, as purchased av		136	4.8	5	15	80
Grape fruit		215	7.57	7	4	89
Grape juice	Small glass	120	4.2	0	0	100
Gooseberrries		261	9.2	5	0	95
*Lemons		215	7.57	9	14	77
Lemon juice		246	8.77	0	0	100
Nectarines		147	5.18	4	0	96
Olives, ripe	About seven	37	1.31	2	91	7
*Oranges, as purchased, av	One very large	270	9.4	6	3	91
Oranges, juice	Large glass	188	6.62	0	0	100
*Peaches, as purchased av	Three ordinary	290	10.	7	2	91
Peaches, sauce	Ord. serving	136	4.78	4	2	94
Peaches, juice	Ordinary glass	136	4.80	0	0	100
*Pears	One large pear	173	5.40	4	7	89
Pears, sauce		113	3.98	3	4	93
*Pineapples, edible p't'n, av		226	8.	4	6	90
Raspberries, black		146	5.18	10	14	76
Raspberries, red		178	6 29	8	0	92
*Strawberries, av	Two servings	260	9.1	10	15	75
*Watermelon, av		760	27.	6	6	88
DAIRY PRODUCTS						
*Butter	Ordinary pat	12 5	44	5	99 5	00
*Buttermilk	1 ½ glass	275	9 7	34	12	54
*Cheese, Am., pale	1 ½ cubic in	22	.77	25	73	2
*Cheese, cottage	4 cubic in	89	3.12	76	8	16
*Cheese, full cream	1 ½ cubic in	23	.82	25	73	2
*Cheese, Neufchatel	1 ½ cubic in	29.5	1.05	22	76	2
*Cheese, Swiss	1 ½ cubic in	23	.8	25	74	1
*Cheese, pineapple	1 ½ cubic in	20	.72	25	73	2
*Cream	¼ ord. glass	49	1.7	5	86	9
Kumyss		188	6.7	21	37	42
*Milk, condensed, sweetened		30	1.06	10	23	67
*Milk, condensed, unsweet'd		59	2.05	24	50	26
*Milk, skimmed	1 ½ glass	255	9.4	37	7	56
*Milk, whole	Small glass	140	4.9	19	52	29
*Whey	Two glasses	360	13	15	10	75

Name of Food	"Portion" Containing 100 Food Units (approx.)	Wt. of 100 Calories		Per cent of		
		Grams	Oz.	Proteid	Fat	Carbohydrate
CAKES, PASTRY, PUDDINGS AND DESSERTS						
*Cake, chocolate layer	Half ord. sq. pc	28	.98	7	22	71
*Cake, gingerbread	Half ord. sq. pc	27	.96	6	23	71
Cake, sponge	Small piece	25	.89	7	25	68
Custard, caramel		71	2.51	19	10	71
Custard, milk	Ordinary cup	122	4.29	26	56	18
Custard, tapioca	Two-thirds ord.	69.5	2.45	9	12	79
*Doughnuts	Half a doughn't	23	.8	6	45	49
*Lady fingers		27	.95	10	12	78
*Macaroons		23	.82	6	33	61
*Pie, apple	One third piece	38	1.3	5	32	63
*Pie, cream	One-fourth pc.	30	1.1	5	32	63
*Pie, custard	One-third piece	55	1.9	9	32	59
*Pie, lemon	One-third piece	38	1.35	6	36	58
*Pie, mince	One-fourth pc.	35	1.2	8	38	54
*Pie, squash	One-third piece	55	1.9	10	42	48
Pudding, apple sago		81	3.02	6	3	91
Pudding, brown betty	Half ord. s'v'g	56.6	2.	7	12	81
Pudding, cream rice	Very small s'v'g	75	2.65	8	13	79
Pudding, Indian meal	Half ord. ser'g.	56.6	2.	12	25	63
Pudding, apple tapioca	Small serving	79	2.8	1	1	98
Tapioca, cooked	Ord. serving	108	3.85	1	1	98
SWEETS AND PICKLES						
*Catsup, tomato, av		170	6.	10	3	87
*Honey	Four teasp'ns.	30	1.05	1	0	99
*Marmalade (orange)		28.3	1	.5	2.5	97
*Molasses, cane		35	1.2	.5	0	99.5
*Olives, green edible portion	Seven olives	32	1.1	1	84	15
*Olives, ripe, edible portion	Seven olives	38	1.3	2	91	7
*Pickles, mixed		415	14.6	18	15	67
*Sugar, granulated	Three teaspoons or 1½ lumps.	24	.86	0	0	100
*Sugar, maple	Four teaspoons	29	1.03	0	0	100
*Syrup, maple	Four teaspoons	35	1.2	0	0	100
NUTS, EDIBLE PORTION						
*Almonds, av	Eight to 15.	15	.53	13	77	10
*Beechnuts		14.8	.52	13	79	8
*Brazil Nuts,	Three ord. size.	14	.49	10	86	4
*Butternuts		14	.50	16	82	2
*Cocoanuts		16	.57	4	77	19
*Chestnuts, fresh, av		40	1.4	10	20	70
*Filberts, av	Ten nuts	14	.48	9	84	7
*Hickory nuts		13	.47	9	85	6
*Peanuts, av	Thirteen double	18	62	20	63	17
*Pecans, polished	About eight	13	.46	6	87	7
*Pine nuts, (pignolias)	About eighty	16	.56	22	74	4
*Walnuts, California	About six	14	.48	10	83	7

Name of Food	"Portion" Containing 100 Food Units (approx.)	Wt. of 100 Calories		Per cent of		
		Grams	Oz.	Proteid	Fat	Carbohydrate
CEREALS						
*Bread, brown, average	Ord. thick slice.	43	1.5	9	7	84
*Bread, corn (johnnycake) av.	Small square	38	1.3	12	16	72
*Bread, white, home made	Ord. thick slice	38	1.3	13	6	81
Corn flakes, toasted	Ord. cer. dish f'l	27	.97	11	1	88
*Corn meal, granular, av.		27	.96	10	5	85
Corn meal, unbolted, av.		26	.92	9	11	80
*Crackers, graham	Two crackers	23	.82	9	20	71
*Crackers, oatmeal	Two crackers	23	.81	11	24	65
*Hominy, cooked	Large serving.	120	4.2	11	2	87
*Macaroni, av.		27	.96	15	2	83
*Macaroni, cooked	Ord. serving.	110	3.85	14	15	71
*Oatmeal, boiled	1½ serving.	159	5.6	18	7	75
*Popcorn,		24	.86	11	11	78
*Rice, uncooked		28	.98	9	1	90
*Rice, boiled	Ord. cereal dish	87	3.1	10	1	89
*Rice, flakes	Ord. cereal dish.	27	.94	8	1	91
*Rolls, Vienna, av.	One large roll	35	1.2	12	7	81
*Shredded wheat	One biscuit	27	.94	13	4.5	82.5
*Spaghetti, average		28	.97	12	1	87
*Wheat, flour, e't'e w'h't, av.		27	.96	15	5	80
*Wheat, flour, graham, av.		27	.96	15	5	80
*Wheat, flour, patent, family and straight grade spring wheat, av.		27	.97	12	3	85
*Zweiback	Size of thick slice of bread	23	.81	9	21	70
MISCELLANEOUS						
*Eggs, hen's boiled	One large egg	59	2.1	32	68	00
*Eggs, hen's whites		181	6.4	100	0	00
*Eggs, hen's yolks	Two yolks	27	.94	17	83	00
*Omelet		94	3.3	34	60	6
*Soup, beef, av.		380	13.	69	14	17
*Soup, bean, av.	Very large plate	150	5.4	20	20	60
*Soup, cream of celery	Two plates	180	6.3	16	47	37
*Consomme		830	29.	85	00	15
*Clam chowder	Two plates	230	8.25	17	18	65
*Chocolate, bitter	Half-a-square	16	.56	8	72	20
*Cocoa		20	.69	17	53	30
Ice Cream (Phila)		45	1.6	5	62	38

†Experiments on Losses in Cooking Meats. (1900–03), Grindley, U. S. Department of Agriculture Bull. No. 141.
‡Laboratory number of specimen, as per Experiments on Losses in Cooking Meat.
*Chemical Composition of American Food Materials, Atwater and Bryant, U. S. Department of Agriculture Bull, No. 28.

FOOD VALUES IN CALORIES PER OUNCE

In some respects Dr. Kellogg's method of giving the composition of foods in food units (calories) per ounce is simpler and more useful in the actual calculation of dietaries. By having a table with composition in food units, the day's ration may be calculated by simple addition, combined with a little mental multiplication. If the results are wanted in ounces, the calories of proteid or carbohydrate are divided by 116, and calories of fat by 264. For grams, the factor is 4.1 for proteids and carbohydrate and 9.3 for fats.

Such a table is given in the Battle Creek Sanitarium *Diet List* which contains the composition of all foods served at that institution in calories per ounce. Dr. Fisher's method of serving the food in "standard portions" has been adopted and the figures by that method of calculation are also given in the last edition of the booklet.

The *Diet List* also contains tables giving normal height, weight, skin surface and calories required, on the average, for men and women, boys and girls, per day. The booklet is published by the Modern Medicine Publishing Company and may be obtained through our school for 25c. or will be loaned to members for 1c. postage.

The calculations are based on Professor Chittenden's standards and so are lower in proteid requirements and total food value than the Atwater standard dietaries. For example, the diet for an average man, 5 feet 8 inches tall and weighing 157 pounds, is given as 236 calories of proteid, 708 calories of fat, 1,416 calories of carbohydrates, with a total of 2,360 calories per day.

The Atwater standard for man with light exercise is 100 grams of proteid, 100 grams of fat, 360 grams of carbohydrate, or on a calory basis: 410 calories of proteid, 930 calories of fat, 1,476 calories of carbohydrate, total 2,816 calories.

Under the Chittenden standard, of every 100 food units about 10 should be proteid, 30 fat and 60 carbohydrate. Based on the Atwater standard, of 100 food units, about 14 are proteid, 32 fat, and 52 carbohydrate.

It must be remembered that no one in formulating a "standard diet" attempts to give anything more than a possible average, from which to vary, according to conditions. It is recognized that health may be maintained on various proportions of proteid and that the ratio of fat to carbohydrates is immaterial, provided digestion is not upset.

The following table has been taken from some of the figures in the *Diet List*. The figures based on standard portions are omitted.

NOTE — Members of the School are expected hereafter to solve question No. 21, Part I, *Food and Dietetics* — "Calculate the amount of proteid, carbondrate and fat in your own diet for one day," in the usual way, as shown on page 193, and by the "calories per ounce" method, using the following figures. The total calories should be found by each method. The two figures will not come out exactly the same, but should be approximate.

Also plot one of these meals on the "Food Map" like the last page of this Bulletin. Find the "center of gravity" by the method shown in Figs. 9 and 10. Say what the resulting point represents in terms of calories and of ounces, of proteids, fats and carbohydrates. Give full details.

These "Food Maps" may be obtained of the School in quantity, printed on good paper—25 for 10 cents, 100 for 30 cents (in stamps).

FOOD VALUES IN FOOD UNITS PER OUNCE.

	Calories Per Ounce			
	Protein	Fat	Carbohydrate	Total
Apples, baked	.6	1.3	28.4	30.3
Apples, fresh	2.75	7.15	91.3	101.1
Apple sauce	.3	.8	20.6	21.7
Apricots	1.3	0	15.6	16.9
Asparagus in cream	2.8	17	4.9	24.7
Bananas	1.5	1.6	25.7	28.8
Barley, pearl	2.97	.87	27.24	31.08
Beans, string, (cooked)	.9	2.9	2.2	6
Beets, (cooked)	2.7	.3	8.6	11.6
Biscuit, cream	10.3	27.5	49.6	87.5
Blanc Mange, Farina	4.16	21.56	18.6	44.4
Bread, corn	8.5	12.3	52	72.8
Bread, graham	10.4	4.8	60.8	76
Bread, rye	10.5	1.6	62.1	74.2
Bread, white	9.3	3.7	63.4	76.4
Bread, whole wheat	11.3	2.4	58	71.7
Buns	7.3	17.3	66.8	91.4
Butter, (dairy)	1.2	226.6	0	227.8
Buttermilk	3.5	1.3	5.6	10.4
Cake, frosted	6.8	24	74.9	105.7
Cake, layer	8.2	45.1	76.5	130.6
Cake, sponge	12.4	14.2	94.2	120.8
Candy, (Sanitas chocolates)	1	3.8	85.2	90
Canteloupe	.7		10.9	11.6
Carrots, creamed	2.01	7.5	10.3	19.8
Cashew nuts	28.87	125.7	28.24	182.81
Celery	1.3	.3	3.9	5.5
Cheese, cottage	19.9	12.4	5.1	37.3
Crackers, graham	11.7	25.1	86.1	122.9
Crackers, oatmeal	13.3	29.6	80.5	123.8
Cream	2.9	49.3	5.3	57.5
Cream sauce	3.7	22.9	9	35.6
Custard, caramel	5.2	11.4	23.6	40.2
Custard, plain	5.7	13	12.5	31.2
Dates,	2.5	7.5	91.5	101.5
Eggs, poached, etc	16.3	32		48.3
Eggs (each, whole, a'v'y.)	26.3	41.9		68.2
Eggs (white) each	15.5	.6		16.1
Eggs (yolk) each	10.8	41.3		52.1
Figs	.5	8	86.6	92.4
Grape fruit	.9	.5	11.8	13.2
Grapes	1.16	3.2	16.6	20.9
Gruel, barley	1.48	.7	10.2	12.39
Gruel, oatmeal	1.3	1.4	5.8	8.5
Honey	.5		94.7	95.2
Macaroni and tomato	5	3.86	17.16	26
Maple syrup			83	83
Mayonnaise, cooked	6.87	67.1	2.85	76.8

	Calories Per Ounce			
	Proteid	Fat	Carbohydrate	Total
Milk, skimmed	4	.8	6	10.8
Milk, whole	3.8	11	5.8	20.6
Nut butter	34.2	124	20	178.2
Nuts, almonds	24.5	146.4	20.2	191.1
Nuts, Brazil	19.8	178.1	8.2	206.1
Nuts, Filberts	18.2	174.1	15.2	207.5
Nuts, Pecans	11.2	188	17.8	217.8
Nuts, walnut, Eng	19.4	169.2	18.2	206.8
Oats, rolled (cooked)	3.3	1.3	13.4	18
Olive oil	0	264.1	0	264.1
Olives, ripe (7)	2	69.1	5	76.1
Onions, boiled	1.13	4.29	5.1	10.52
Oranges	.9	.5	13.5	14.9
Parsnips, creamed	2.56	6.5	17.29	26.35
Peanuts	30.1	102.9	8.5	161.5
Pears	.7	1.3	16.5	18.5
Peas, green	7.8	9.1	17.5	34.4
Pie, apple	7.5	18	37.2	62.7
Pie, custard	4.9	16.8	30.5	52.2
Pie, squash	4.27	22.7	36.5	63.5
Potatoes, baked	3.4	.4	28.9	32.7
Potatoes, boiled	2.9	.3	24.4	27.6
Potatoes, mashed	3	8	20.8	31.8
Potatoes, sweet, browned	4.11	11.25	59.7	75
Prunes (cooked)	.8	.3	26.4	27.5
Pudding, baked Indian	4.8	21.8	20	46.6
Pudding, bread custard	6.44	32	19.12	37.56
Pudding, snow	4.78	9.22	16.37	30.38
Pudding, apple tapioca	4.5	17.58	26.44	48.5
Raisins	3	8.8	88.8	100.6
Rice, boiled	3.3	.3	28.5	32.1
Salad, apple and celery	2.26	4.27	26.16	32.7
Salad, egg mayonnaise	13.37	30.66	1.46	44.5
Salad, potato	4.56	25.77	15.06	45.39
Sandwich, cottage cheese	11.2	33.9	37.6	82.8
Soup, cream of celery	2.8	19	4.7	26.5
Soup, cream of potato	2.7	19.2	.9	30.9
Soup, split pea	7.18	1.85	18.07	27.1
Soup, tomato bisque	3.1	10.5	2.4	16
Soup, vegetable	.96	5.71	6.9	13.5
Spinach	3.3	1	4.93	9.3
Squash, steamed or canned	1	1.3	12.3	14.6
Sugar (granulated)	0	0	116.6	116.6
Toast, breakfast	11.4	27.5	86.2	125.15
Toast, cream	4.15	29.9	13.6	47.6
Tomatoes, stewed or canned	1.4	.5	4.7	6.6
Wheat flakes, toasted	11	3.9	88.9	103.8
Zwieback	11.4	26.4	85.8	123.6

	Calories Per Ounce			
	Protein	Fat	Carbohydrate	Total
FLESH FOODS				
Beef, roasted (fat)	18.14	136 85	0	155.26
Beef, round (boiled, lean)	40.9	4 .54	0	45.6
Bouillon	2.3	.3	3	3
Chicken (broilers)	24.6	6 56	0	31.16
Cod fish	19.3	1 .02	0	20.32
Goose	18.1	95 4	0	113.5
Halibut (steak)	21.78	13 9	0	35.68
Lamb chops (boiled)	25.3	79.7	0	105
Lamb (leg, roast)	22.2	33.3	0	55.5
Liver (veal)	21.78	13.9	0	35.68
Lobsters	19	4 8	0	23.82
Mutton (leg, boiled)	29.1	54.1	0	83.2
Oysters	7.2	3 .23	0	10.43
Pork (bacon, smoked medium fat)	11.3	177 .3	0	188.6
Pork (ham, boiled)	25.4	65 .4	0	90.3
Pork (loin, chops)	18.5	84.5	0	103
Salmon (California)	20.4	46.6	0	66.6
Shad	21.9	25.71	0	47.61
Trout (brook)	22.2	55.5	0	77.7
Turkey	24.1	59.1	0	83.2
Veal (leg, boiled)	30.4	11.2	0	41.6
UNCOOKED FOODSTUFFS.				
Barley, pearled	9.9	2.9	90.8	103 .6
Beans (dried)	26.3	4.8	69.5	100.6
Cocoa	25.2	77.1	44.0	146.3
Corn, green	3.6	2.9	23.0	29.5
Cornmeal	10.7	5.1	87.9	103.7
Cornstarch			105.0	105.0
Flour, graham	15.5	5.9	83.3	104.7
Flour, rye	7.9	2 .4	91.8	102.1
Flour, wheat (entire wheat)	16.1	5.1	83.8	105.0
Flour, wheat (patent)	12.6	2.9	87.7	103.2
Lemon juice	0	0	11.4	11.4
Macaroni	3.5	4.0	18.4	25.9
Oatmeal	18.8	19.2	78.8	116.8
Oats, rolled	19.5	19.5	77.2	116.2
Peas (dried)	28 7	2.7	72.3	100.7
Peas, green	8.2	1.3	19.7	29.2
Potatoes	2.6	.3	21.5	24.4
Rice	9.0	.8	92.0	101.8
Sweet potatoes	2.1	1.9	32.0	36.0
Wheat, cracked	13.0	4.3	88.1	106.6

BOOK NOTES

All the following books have been added to our Circulating Library Department and may be borrowed by *Members of the School* if postage is sent with request. Others desiring to purchase books through this Department should send price indicated.

HUMAN FOODS, by Harry Snyder, B. S. Professor of Agricultural Chemistry, University of Minnesota; 362 pages, 76 illustrations. Published by Macmillian Co. New York. Price $1.20, postage 14 cents.

This is a concise elementary treatise of the subject, prepared as a text book for Professors Snyder's pupils. The chapters on cereals and wheat flour are very good, and the illustrations are most excellent. There is a brief list of experiments, numerous questions for review and a bibliography. It seems as if the material might have been presented in a little more interesting manner

ESSENTIALS OF DIETETICS, by Pope and Carpenter, 249 pages, published by G. P. Putnam & Sons, New York. Price $1.00, postage 12 cents.

The sub-title of the book is "A text book for nurses, and a practical guide for the household." One of the authors, Amy Elizabeth Pope. is an old friend of the members of our School through our book "Home Care of the Sick." Miss Carpenter is a teacher of Domestic Science. The first part of the book gives a clear and concise treatment of the subjects, food, digestion, milk, eggs, fish, meat, dietaries, food for infants, diet and disease; and the second half is made up of cooking recipes, with some details as to the principles of cookery. The book seems most admirably adapted for its purpose.

THE FIRELESS COOKER, HOW TO MAKE IT, HOW TO USE IT, WHAT TO COOK, by Loverll, Whitemore and Lyon. 211 pages, illustrated, Published by Home Publishing Co., Topeka, Kas. Price $1.00, postage 10 cents.

The authors give their experience in making home made cookers out of boxes, trunks, candy tubs,—refrigators, even, in the first forty pages. The remainder of the book is given up to recipes and suggestions.

THE FIRELESS COOK BOOK, by Margaret Mitchell, 315 pages, illus-

trated, published by Doubleday, Page & Co., New York, Price $1.25, postage 14 cents.

Here we have further suggestions for home-made cookers, and again the bulk of the book is made up of recipes. The recipes are well selected, and the methods of preparation are very thoroughly and carefully given. There is a chapter giving recipes and directions for cooking in large quantities, and also an appendix giving experiments on the nsulating powers of different materials, transference of heat in various ways, etc.

THE BABY, a Book for Mothers and Nurses, by Daniel R. Browne, A. B., M. D. 200 pages. Published by Whitcomb and Barrows, Boston. Price $1.00, postage 8 cents.

The author presents the subject concisely and in an interesting way. Directions are clear and specific. The modified milk recipes are for the most part made from cream and whole milk, which seems an unnecessary complication. For the city baby it would always be necessary to purchase two bottles of certified milk, and high grade milk is expensive. Mothers will find a few new points in this book even if they already have a number of books on the same subject.

THE RENEWAL OF LIFE, by Margaret Warner Morley. 192 pages. Published by A. C. McClurg & Co., Chicago. Price $1.25, postage 12 cents.

This is the second book of the author on the subject, and gives the results of her riper experience. It is written with the desire of helping the mother in making known the facts of self and sex to the child. Mothers who find this difficult will obtain many suggestions from the book.

HOME PROBLEMS FROM A NEW STANDPOINT, by Caroline L. Hunt, 145 pages. Published by Whitcomb & Barrows, Boston. Price $1.00, postage 8 cents.

This is a series of essays on "More Life for Woman, for Man and for the Household Employees." "More Physical Vigor, Joy of Living, Beauty, Pleasure for the Producer." "More Conscienious for the Consumer," and "New Work for the Home." They are interesting and suggestive of possible future developments in the way of public kitchens, laundries, expert household service and so on.

Box Furniture, by Louise Brigham, 304 pages, many illustrations. Published by the Century Company, New York. Price $1.50, postage 15 cents.

The author gives full details for making all kinds of simple furniture from ordinary packing boxes. While results in all cases might not be successful as shown by the attractive sketches and photographs, still the book is an admirable one to give a boy who likes to work with tools — or a girl for that matter. It will also prove suggestive for anyone wishing to fit up a summer cottage or for a young couple going to housekeeping with very little to spend on furnishing.

Textile Fibers, by J. Merritt Mathews, Ph. D., Philadelphia Textile School, 480 pages, 125 illustrations. Published by John Wiley & Sons, New York, Price $4.00, postage 24 cents.

This is a new edition, re-written and enlarged. While the book is intended as a reference book for the manufacturer and the student on technical textile work, it is perhaps the best reference book on the subject for the domestic art teacher. The illustrations will be found valuable for pupils of any age.

Methods of Textile Chemistry, by Frederic Dannerth, Ph. D., formerly of Philadelphia Textile School. 146 pages. Published by John Wiley & Son, New York. Price $2.00, postage 12 cents.

This is a syllabus of a lecture course on advanced laboratory textile chemistry. The part giving methods of analyzing mixed fibers and detecting adulterations is the most valuable to students of textiles.

Applied Physiology, by Robert Hutchison, M. D., F. R. C. P. 289 pages. Illustrated. Published by Edward Arnold. Price $2.00, postage 18 cents.

Hutchison's *Food and Principles of Dietetics* is well known. This book by the same author gives more extended treatment on the subject of metabolism, digestion and excretion.

Diet in Tuberculosis — Principles and Economics, by Noel D. Bardswell, M. D., and J. C. Chapman, M. R. C. S., Published by Oxford University Press. 183 pages. Price $2.50, postage 14 cents.

An excellent treatment on economic dietaries for those in health also.

BULLETINS AND PAMPHLETS

DIGESTIBILITY OF STARCH AS AFFECTED BY COOKING, by Edna E. Day, Ph. D., University of Missouri, Bulletin No. 202, Office of Experiment Station, Washington, D. C. Price 10 cents. (Send coin to Superintendent of Documents, Washington, D. C.)

This Bulletin embodies the results of Professor Day's investigations made in connection with her Doctor's degree. An admirable summary is given of what little is known about the composition of starches and a number of new facts are brought out. The author concludes that long cooking of potato starch at the boiling temperature does not increase the digestibility, but that long cooking of the cereal starches increases ease of digestion somewhat, but not greatly.

COURSE IN CEREAL FOODS AND THEIR PREPARATION, for Movable School of Agriculture, by Margaret G. Mitchell. Bulletin 200, Office of Experiment Station, Washington, D. C. 78 pages. Price 10 cents. (Send coin to Superintendent of Documents, Washington, D. C.)

NUTS AND THEIR USE AS FOOD, by M. E. Jaffa. Farmers' Bulletin No. 332. *Free* from Department of Agriculture, Washington, D. C.

THE DAILY MEALS OF SCHOOL CHILDREN, by Caroline L. Hunt. U. S. Bureau of Education, Washington, D. C. Bulletin No. 3, 1909. Whole No. 403. 62 pages. Illustrated. *Free.*

A most valuable report on "School Lunches," "Food for Children," and "The Under-fed Child," with a bibliography. Send for it by all means.

REPORT OF THE DIRECTOR OF SCHOOL HYGIENE, Boston, Mass., by Thomas F. Huntington, M. D., in Report of Superintendent of Schools. Document No. 7, 1908. Postage 6 cents.

So far as we know, Boston is the first city in this country to have a director for all the health work in the schools. This report gives the results obtained during the first year. There is a suggestive discussion of physical training, playgrounds, sanitation, medical inspection, the school nurse, and a list of books and references on Playgrounds, Vacation Schools, and School Gardens.

REPORT OF THE COUNTRY LIFE COMMISSION, Senate Document No. 705, 60th Congress, Second Session, 65 pages. Loaned 2 cents.

From the chapter on Rural Education: "As the home is the center

of our civilization, so the home subjects should be the center of every school." The whole report is valuable and well worth reading. The supply is exhausted, but write your Senator and ask for a copy and so help to get it reprinted.

REPORT OF THE PRESIDENT'S HOME COMMISSION, Senate Document No. 644, 60th Congress, 2nd Session, 381 pages. Loaned 12 cents.

Sections on Industrial Hygiene and Social Betterment, including chapters on How to Keep Well, Alamentation and Food, Prevention of Infectious Diseases, Infant Mortality, Sexual Hygiene, The Tobacco Habit, The Old, Old Question, etc. This report has been called by someone who ought to know, "The best text-book in the field for home economics teaching." The edition is exhausted. Write to both of your Senators and ask to have it reprinted.

PROCEEDINGS OF THE LAKE PLACID CONFERENCE ON HOME ECONOMICS, 1908, Lake Placid Club, Essex Co., N. Y. 218 pages. Price, 50 cents, postage 8 cents.

This is the last of these reports and it contains the usual store of excellent and suggestive articles. There is a reprint of the "Teaching Section" (44 pages, price 10 cents, postage 2 cents), which contains the detailed outline of a proposed college entrance credit course in household science.

THE JOURNAL OF HOME ECONOMICS, Nos. 1, 2, and 3. Published bimonthly by the American Home Economics Association, about 100 pages each. Illustrated. Price, $2.00 a year or 40 cents a copy, of the Secretary, Benjamin R. Andrews, 525 W. 120th Street, New York City. Loaned to Members of the School for 8 cents each.

The Lake Placid Conference on Home Economics was merged and expanded into the American Home Economics Association at the Washington meeting, January, 1909. Three numbers of the Journal have appeared and no teacher of domestic science or art can afford to be without them. Clubs studying home economics would do well to subscribe for the Journal and home-makers will find much in the magazine of interest and value to them. Membership in the Association includes the Journal. The dues are $2.00 per year. All who are interested are eligible to membership. An application blank will be sent from the School on request.

RETAIL PRICES OF FOOD, 1890–1907. In Bulletin of U. S. Bureau of

Labor, No. 77, July, 1908. 152 pages. *Free* to teachers. The U. S. Department of Commerce and Labor, Washington, D. C.

The average price of food has increased over 25 per cent from 1890 to 1907. Prices in 1907 increased over those in 1906 from 1 to 9 per cent, average 4.2 per cent. Teachers of domestic science and housekeepers should read this and similar reports. Nearly all public libraries have them.

School Training for the Home Duties of Women, Part II, Belgium, Sweden, Norway, Denmark, Switzerland and France. 352 pages. Price, 70 cents, postage 12 cents.

Part III. The Domestic Training of Girls in Germany and Austria, 120 pages. Price, 30 cents, postage 5 cents.

These two reports of the Board of Education, England, complete the series of which Part I was "Teaching of Domestic Science in the United States," by Miss Ravenhill. While they are not of so much direct interest as Part I, which "showed us to ourselves," teachers will find many suggestions in them and all who are investigating "Home Economics" will need to read them fully.

The Bungalow Book, by Brown Brothers & Co. Sixty designs. Illustrated. Price, $1.00, postage 6 cents.

Summer Cottages, by O. S. Lang. Twenty-five designs. Illustrated. Price, 50 cents, postage 4 cents.

Concrete Country Residences, Published by the Atlas Portland Cement Co., 30 Broad Street, New York City. 168 large pages with very fine illustrations and many designs. Sent by the publishers free for the express charges, 25 cents.

BULLETINS OF THE SCHOOL STILL IN PRINT

No. 8. Club Study of Home Economics. Book Notes, etc., *Free.*

No. 9. "Home Economics in Modern Education," 10 cents.

No. 10. Books in the Circulating Library Department, etc., 10 cts.

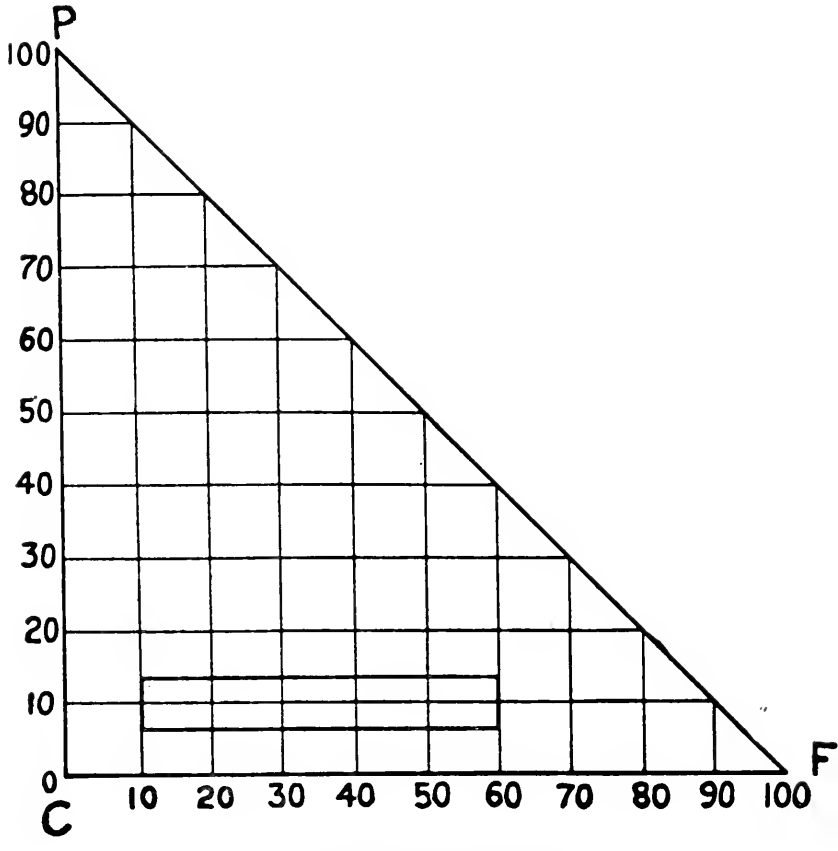
No. 11. "The Up-to-Date Home," Tests of Money and Labor-Saving Appliances, 48 pages, 54 illustrations, 10 cents.

No. 12. Pages from *The Library of Home Economics. Free.*

No. 13. "Food Values: Practical Methods in Diet Calculations." 10 cents.

No. 14. "The Profession of Home-Making." Outlines of Home-Study courses. *Free.*

No. 15. "Free Hand Cooking on Scientific Principles." (In press.) 10 cents.



DR. FISHER'S FOOD MAP

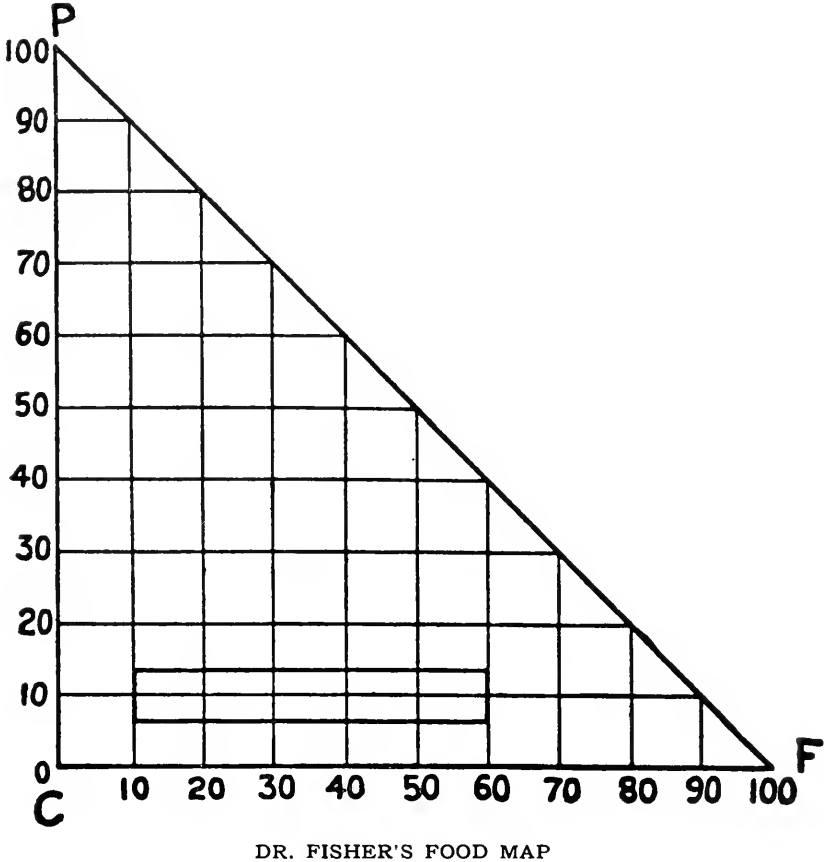
Normal Rectange for a Balanced Diet, Chittenden's Standard

SUPPLEMENT TO BULLETIN
OF THE
American School of Home Economics
CHICAGO

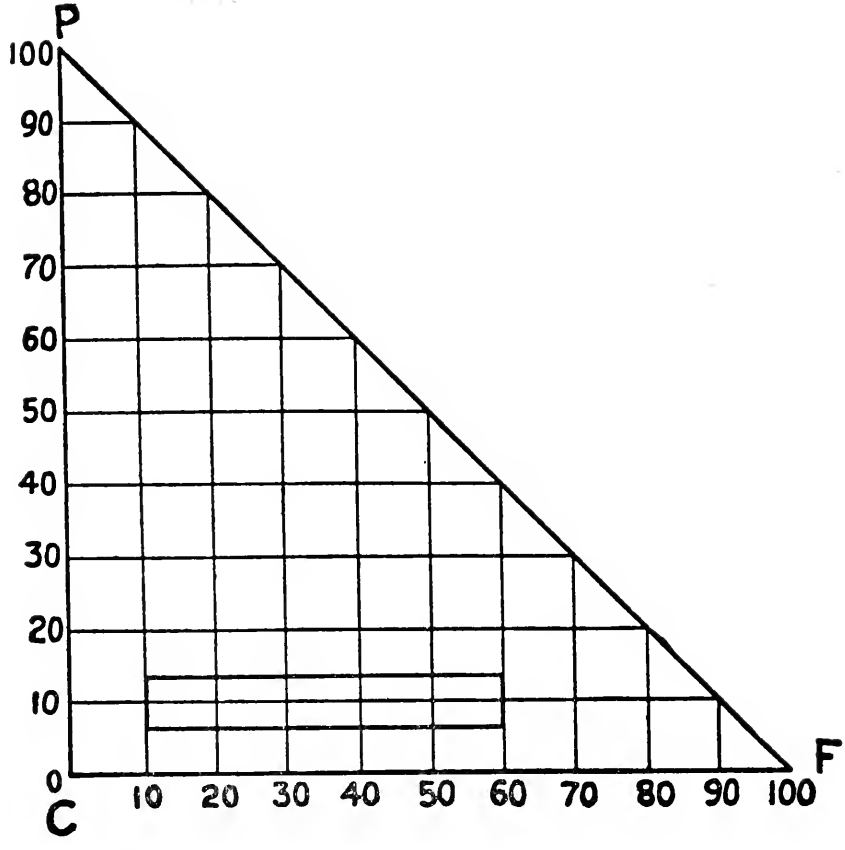
SERIES I | MARCH, 1909 | No. 13

ENTERED AS SECOND-CLASS MATTER

FOOD VALUES: PRACTICAL METHODS IN DIET CALCULATION



DR. FISHER'S FOOD MAP
Normal Rectangle for a Balanced Diet, Chittenden's Standard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Tables Showing Average Height, Weight, Skin Surface, and Food Units Required Daily With Very Light Exercise

BOYS

Age	Height in Inches	Weight in Pounds	Surface in Square Feet	Calories or Food Units
5	41.57	41.09	7.9	816.2
6	43.75	45.17	8.3	855.9
7	45.74	49.07	8.8	912.4
8	47.76	53.92	9.4	981.1
9	49.69	59.23	9.9	1,043.7
10	51.58	65.30	10.5	1,117.5
11	53.33	70.18	11.0	1,178.2
12	55.11	76.92	11.6	1,254.8
13	57.21	84.85	12.4	1,352.6
14	59.88	94.91	13.4	1,471.3

GIRLS

Age	Height in Inches	Weight in Pounds	Surface in Square Feet	Calories or Food Units
5	41.29	39.66	7.7	784.5
6	43.35	43.28	8.1	831.9
7	45.52	47.46	8.5	881.7
8	47.58	52.04	9.2	957.1
9	49.37	57.07	9.7	1,018.5
10	51.34	62.35	10.2	1,081.0
11	53.42	68.84	10.7	1,148.5
12	55.88	78.31	11.8	1,276.8

MEN

Height in In.	Weight in Pounds	Surface in Square Ft.	Calories or Food Units			
			Proteids	Fats	Carbohydrates	Total
61	131	15.92	197	591	1,182	1,970
62	133	16.06	200	600	1,200	2,000
63	136	16.27	204	612	1,224	2,040
64	140	16.55	210	630	1,260	2,100
65	143	16.76	215	645	1,290	2,150
66	147	17.06	221	663	1,326	2,210
67	152	17.40	228	684	1,368	2,280
68	157	17.76	236	708	1,416	2,360
69	162	18.12	243	729	1,458	2,430
70	167	18.48	251	753	1,506	2,510
71	173	18.91	260	780	1,560	2,600
72	179	19.34	269	807	1,614	2,690
73	185	19.89	278	834	1,668	2,780
74	192	20.33	288	864	1,728	2,880
75	200	20.88	300	900	1,800	3,000

WOMEN

Height in In.	Weight in Pounds	Surface in Square Ft.	Calories or Food Units			
			Proteids	Fats	Carbohydrates	Total
59	119	14.82	179	537	1,074	1,790
60	122	15.03	183	549	1,098	1,830
61	124	15.29	186	558	1,116	1,860
62	127	15.50	191	573	1,146	1,910
63	131	15.92	197	591	1,182	1,970
64	134	16.13	201	603	1,206	2,010
65	139	16.48	209	627	1,254	2,090
66	143	16.76	215	645	1,290	2,150
67	147	17.06	221	663	1,326	2,210
68	151	17.34	227	681	1,362	2,270
69	155	17.64	232	696	1,392	2,320
70	159	17.92	239	717	1,434	2,390

NOTE—With active exercise an increase of about 20 per cent total food units may be needed.

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Dietary Calculation with Food Values in Calories per Ounce

Breakfast	Proteids	Fats	Carbohydrates	Total
	4.7	*.2*	*6.0*	
Gluten Gruel 5 oz.	23.5	1.0	30.0	
(each)	*26.3*	*41.9*		
Soft-Boiled Egg	26.3	41.9		
			86.2	
Malt Honey 1 oz.			86.2	
	3.0	*8.0*	*20.8*	
Creamed Potatoes 5 oz.	15.0	40.0	104.0	
	11.4	*26.4*	*85.8*	
Zwieback 2 oz.	22.8	52.8	171.6	
	11.2	*188.0*	*17.8*	
Pecans ¾ oz.	8.4	141.0	13.4	
	.5	*1.3*	*16.6*	
Apple 5 oz.	2.5	6.5	83.0	
	98.5	283.2	488.2	869.9

Dietary Calculation with Food Served in 100 Calories Portions

Dinner	Portions in serving	Proteins	Fats	Carbo-hydrates	Total
Nut French Soup	½	10	20	20	
Nuttolene Sauce	1	29	55	16	
Macaroni, Egg	1	15	59	26	
Baked Potato	2	22	2	176	
Cream Gravy	½	5	33	12	
Granose Biscuit	1½	20	2	128	
Butter	1	1	99		
Malt Honey	2			200	
Celery	¼	4		21	
Apple Juice	½			50	
	10¼	106	270	649	1,025

Hourly Outgo in Heat and Energy from the Human Body as Determined in the Respiration Calorimeter by the U. S. Dept. of Agriculture

Average (154 lbs.)	Calories
Man at rest (asleep)	65
Sitting up (awake)	100
Light exercise	170
Moderate exercise	190
Severe Exercise	450
Very severe exercise	600